

**Mathematical Sciences Research Institute
2014 Critical Issues in Mathematics
Education Workshop**

**The Role of the
Mathematics Department
in the
Mathematical Preparation of Teachers
March 26-28, 2014**

Why Should This Be A Priority?

Society expects our universities to make a major contribution to improving K-12 education and, in particular, K-12 mathematics education.

and

Investing in high quality teachers is the single most important thing we can do to improve K-12 mathematics learning.

and

In today's university environment, it will help our mathematics departments thrive if we are recognized for major contributions to mathematics teacher education.

Why involve mathematicians?

Because the mathematical knowledge of teachers matters

The essential competencies of an effective teacher are command of subject, preparation in effective pedagogical practice, and high overall academic performance.

To Touch the Future

American Council on Education

The Challenge

- What Mathematics do Teachers “Need to Know” and How Should They “Come to Know” Mathematics?
 - What does it mean to offer challenging courses and curricula for math teachers?
 - How do we help teachers translate the mathematics they come to know into classroom practice that leads to improved student learning?

Mathematicians cannot do this alone

Outstanding mathematics teaching requires interdisciplinary knowledge, including:

- Mathematical knowledge
- Pedagogical knowledge
- Knowledge of the students you teach

Mathematics teaching is an extraordinarily complex activity involving interactions among teachers, students, and the mathematics to be learned in real classrooms.

(National Math Panel, 2008)

The realities of scale

